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# Emended Circumscription of *Begonia silletensis* (Begoniaceae) and Description of a New Subspecies from Yunnan, China

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**ABSTRACT.** The circumscription of *Casparya silletensis* A. DC. (= *Begonia silhetensis* (A. DC.) C. B. Clarke) is emended so as to accurately describe the type material of this species and exclude material of *B. aborensis* S. T. Dunn. *Begonia silletensis* subsp. *mengyangensis*, a taxon endemic to the Xishuangbanna region of Yunnan Province, China, is newly described and illustrated. *Begonia silletensis* subsp. *mengyangensis* differs from subspecies *silletensis* by its larger leaves (14–27 × 20–27 cm vs. 10–17 × 10–15 cm) and unequally ridged fruit. *Begonia silletensis* subsp. *silletensis* is reported new to Burma and Thailand. A key is provided to distinguish the two subspecies.

**Key words:** *Begonia*, Begoniaceae, China.

Approximately 70 species of *Begonia* L. are found in Yunnan Province, representing about 60% of the total number found in China and 6 of the 18 Asiatic sections (Doorenbos et al., 1998). *Begonia silletensis*, a species previously considered restricted to northeastern India, was discovered in the Xishuangbanna region of Yunnan Province in 1977 during a Kunming Botanic Garden expedition and introduced into cultivation. Examination of the Begoniaceae collections of the Kunming Botanic Garden Herbarium has revealed additional material collected from the same region by an earlier Sino-Soviet expedition in 1957. As these disjunct Chinese populations of *B. silletensis* differ from the northeast Indian populations by having larger leaves and unequally ridged fruit, the Chinese populations are recognized here as a new subspecies. Before we can compare the new subspecies with the typical *B. silletensis*, the description of *B. silletensis* requires emending.

De Candolle (1864) originally described *Begonia silletensis* as a species of the genus *Casparya*. The original circumscription of *Casparya silletensis* A. DC. does not match its type (*Wallich 9107*). De Candolle (1864) described *C. silletensis* as having

velutinous petioles, peduncles, outer surfaces of the male perianth segments, and ovaries and hispidulous leaf blades. However, the type collection that he cited along with the description is glabrous throughout. Apart from this discrepancy, De Candolle's description of *C. silletensis* matches the type collection. We therefore suggest that De Candolle based his species on the *Wallich 9107* collection and additional material of a different taxon. As no additional material is cited in his description of *C. silletensis*, the identity of this additional material is not certain. However, it is likely to have been *B. aborensis* S. T. Dunn, as this species is covered with velvety hairs and is closely related to *B. silletensis*. *Begonia aborensis* was not recognized as a distinct species until 1920. In 1879, Clarke synonymized the genus *Casparya* with the genus *Begonia* and arbitrarily changed the spelling of the epithet "*silletensis*" to "*silhetensis*." Clarke (1879) certainly did include material of both *B. silletensis* and *B. aborensis* in his description of *B. silhetensis*. His circumscription of *Begonia silhetensis* (= *B. silletensis*) is based on *Wallich 9107* and two other collections, *Griffith 2569* and *Wallich 3677B*. Our research shows that *Griffith 2569* and *Wallich 3677B* are conspecific with Burkill's collections from the Abor Hills of northeastern India upon which Dunn (1920) based his *Begonia aborensis*. Clarke, in fact, suspected that his description was based on material of more than one species as he stated: "Griffith's No. 2569 (with which Wallich's No. 3677B agrees), differs considerably in hairiness and in size of the flower from Wallich's No. 9107 on which A. DC. founded his *Casparya? silhetensis*: two species are possibly here mixed, but the material is not sufficient to justify a new species" (Clarke, 1879: 636). The circumscription of *Begonia silletensis* is emended here so as to accurately describe the type (*Wallich 9107*) and exclude material that Dunn much later described as *B. aborensis*. Follow-



ing Clarke (1879), the species is classified in the genus *Begonia*.

***Begonia silletensis*** (A. DC.) C. B. Clarke emend. M. C. Tebbitt. *Casparya silletensis* A. DC., Prod. 15(1): 277. 1864. *Begonia silhetensis* (A. DC.) C. B. Clarke, in J. D. Hooker Fl. Brit. Ind. 2: 636. 1879. TYPE: Sillet Mts., Wallich 9107 (holotype, G-DC; isotypes, BM, K-WALL).

**a. *Begonia silletensis* subsp. *silletensis***

*Dioecious* perennial herbs. *Stems* prostrate, ca. 1 cm diam., internodes 1–2 cm, glabrous. *Stipules* persistent, lanceolate, 1.4–2.1 × ca. 0.4 cm, apex acute, margin entire, both surfaces glabrous. *Leaves* few, drooping; *petioles* 22–43 cm, glabrous; *blade* green, glabrous on both surfaces, ovate, 10–17 × 10–15 cm, apex shortly acuminate, base asymmetric, sinus 3–4.5 cm deep, margin undulate, with short serrate teeth, primary veins 7–9, palmate. *Inflorescence* axillary, an erect dichasium in which the primary peduncle branches vary from 0.1 to 5 cm so that the inflorescence is either umbellate or cymose in appearance, flowers fragrant, 1–10; *peduncles* 8–11 cm in both male and female inflorescences; *bracts* deciduous, ovate to elliptic, ca. 1.1 × 0.2 cm, margin entire, both surfaces glabrous. *Pedicels*: those of male flowers 1–2 cm, those of female flowers 4–5 cm. *Male flowers*: *bracteoles* absent; *perianth segments* white, greenish white or pink, 4, outer 2 ovate, oblong or obovate, concave, thick, 4.5–15 × ca. 10 mm, apex blunt, inner 2 ovate-obovate, 3.4–17.5 × 7.5–8 mm, apex rounded; *stamens* 100<sup>+</sup>, arranged in a symmetrical dome-shaped mass, *filaments* 1.75–2.5 mm, free to base, attached to a raised receptacle, *anthers* linear, 1.75–2.75 mm, dehiscing via vertical slits along side of anther, connective projecting 0.5 mm, apex rounded. *Female flowers*: *bracteoles* absent, *perianth segments* white or pink, 4, oblong to obovate, apex rounded, outer 2 slightly longer; *ovary* ovoid to ellipsoidal, ca. 1 × 1 cm, circular in cross section, 4-locular, *placentation* axillary, *placentae* bifid, rhomboidal in cross section, ca. 4 × 4 mm, bearing ovules on both surfaces of branches; *styles* deciduous, 4, very broad, base 0.5 cm across, 0.8–1.2 cm long, fused just below half way, and then bifid, band of stigmatic papillae twice spirally twisted. *Infructescences* 1–2-fruited; *fruiting pedicels* ca. 3.5 cm; *fruit* indehiscent, usually cork-like in texture or rarely leathery (in sicco), ovoid to ellipsoidal, 2.3 × 1.5 cm, walls ca. 2.5 mm thick, lacking ridges or wings.

Northeastern India, Burma, and northern Thailand. We report it as new to Burma and Thailand. Wallich proposed the invalidly published name “*Begonia gigantea*” for this species based on the collection “Wallich 3677B” (Wallich, 1831).

*Representative specimens.* INDIA. **Assam**: Chanduar Forest, Mann 7/87 (K); Luckimpore, Makum 300 ft., 12.iv.1885, Clarke 37805 [specimen annotated by C. B. Clarke as “*B. sphaerocarpa*” nomen nudum] (K); Namchung, 155 ft., Luchimpore, 18.iv.1885, Clarke 37937A [specimen annotated by C. B. Clarke as “*B. sphaerocarpa*” nomen nudum] (K); Cachar, moist shade of Shapose Bomara, Nov. 1873, Keenan s.n. (K); Katakhal Forest, Mann s.n. (K). BURMA. Nammeen to Namma, Myitkina District, 1000 ft., 7.iii.1910, Lacey 5170 (E). THAILAND. Northern Chiangmai, Trang, ca. 800 m, 11.vi.1960, herb scattered in evergreen forest, by stream, fruits purplish red, angular, T. Smitinand & H. St. John 6832 (K).

**b. *Begonia silletensis* subsp. *mengyangensis*** M. C. Tebbitt & K.-Y. Guan, subsp. nov. TYPE: China. Yunnan: Xishuangbanna, on way from Puurem to Mengyang, bottom of valley in wet area in slope facing N, dense forest, 21 Apr. 1957, Sino-Soviet Union expedition 9633 (holotype, KUN; isotype, KUN). Figure 1.

A *B. silletensis* subsp. *silletensis* foliis majoribus (ad 27 × 27 cm); fructus globosus interdum carinatus.

*Dioecious*, perennial herbs, 20–50 cm tall. *Stems* prostrate, 1.5–4.0 cm diam., cortex red as seen in cross section, internodes 2–3 cm, with sparse short hairs. *Stipules* persistent, reddish, not keeled, asymmetrically triangular-lanceolate, 2–2.5 cm long, dorsal surfaces with short hairs. *Petioles* green with white lenticels, red at base, 30–55 cm long, with short white hairs throughout; *blades* shiny green, leathery, glabrous above, paler green, hairy beneath, broadly ovate, 14–27 × 20–27 cm, apex acute, base cordate, slightly asymmetric, sinus 4.5–11 cm deep, leaf bases overlapping, margin undulate, with short serrate teeth, primary veins 8, palmate. *Inflorescence* axillary, an erect dichasium in which the primary peduncle branches are reduced to 1–3 mm long so that the inflorescence appears umbellate, flowers fragrant, ca. 15; *peduncles*: those of male inflorescence 10–15 cm long, with short white hairs, those of female inflorescence ca. 17 cm long, with short white hairs; *bracts* deciduous, narrowly to broadly ovate, 0.8–2 × 0.2–1.2 cm, both surfaces glabrous, margins shortly ciliate. *Pedicels* of male flowers 12–35 mm long. *Male flowers*: *bracteoles* absent; *perianth segments* white, sometimes flushed pink, 4, outer 2 broadly ovate to broadly elliptic, ca. 15 × 10–15 mm, apex obtuse, outer surfaces pubescent, inner two broadly elliptic to broadly obovate, ca. 10 × 12 mm, apex obtuse,



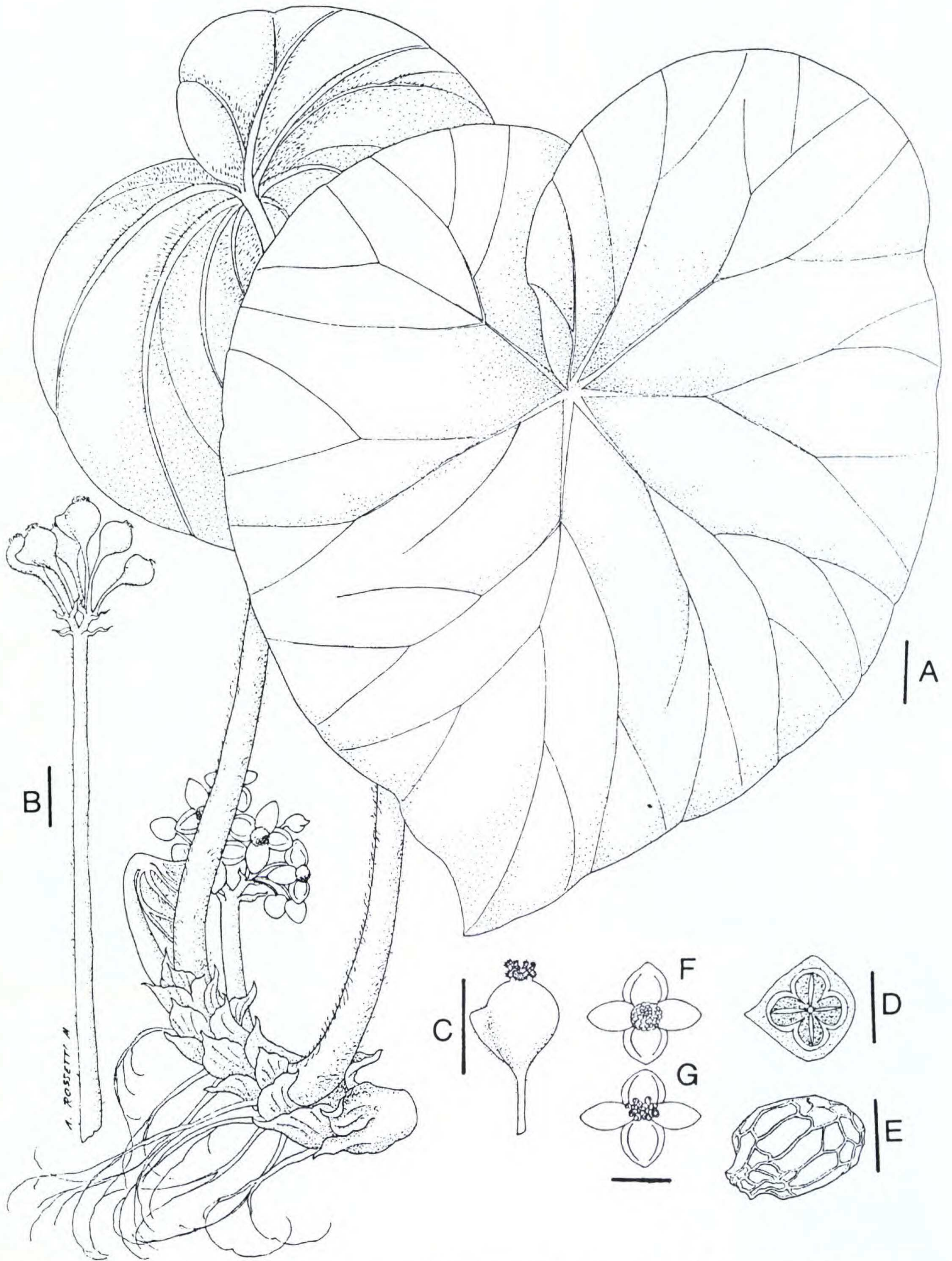


Figure 1. *Begonia silletensis* subsp. *mengyangensis* M. C. Tebbitt & K.-Y. Guan. —A. Male plant. —B. Inflorescence. —C. Fruit. —D. Transverse section of mature fruit. —E. Seed. —F. Male flower. —G. Female flower. Scale bars: A = 2.25 cm; B = 2 cm; C, D = 1 cm; E = 150  $\mu$ m; F, G = 2 cm.



outer surfaces glabrous. *Stamens* ca. 60, arranged in a symmetrical dome-shaped mass, *filaments* free to base, ca. 2 mm long, attached to a raised receptacle, ca. 1 mm high, *anthers* elliptic, ca. 2.2 mm long, dehiscing via vertical slits along side of anther, connective projecting 0.5 mm, apex rounded. *Pedicels* of female flowers 1–2 cm long. *Female flowers*: *bracteoles* absent, *perianth segments* white, sometimes flushed pink, 4–6, outer 2–3 ovate, ca. 15 mm long, apex obtuse, inner 2–3 elliptic to obovate, ca. 12 mm long, apex obtuse; *ovary* ellipsoidal, ca. 1 × 1 cm, 4-locular, *placentation* axillary, *placentae* bifid, bearing ovules on both surfaces of branches; *styles* long persisting but eventually deciduous, 4, fused at base for 1.5–2 mm, bifid, band of stigmatic papillae once spirally twisted. *Infructescence* 4–6-fruited. *Fruiting pedicels* green, erect, to 3 cm long; *fruit* indehiscent, fleshy, ellipsoidal, (0.5–)1–2 cm diam., with short hairs, lacking ridges or wings or with up to 4 blunt unequal, triangular ridges (on same plant), ridges 2–3 × 3–5 mm high. *Seed* ca. 300 µm long.

*Begonia silletensis* subsp. *mengyangensis* grows among tall herbaceous vegetation in damp, shady areas in primary tropical forest at altitudes between 570 and 1200 m; it has been collected with flowers and fruit in May and April. This taxon has proved amenable to cultivation, both at Kunming Botanic Garden, China, and Glasgow Botanic Gardens, Scotland.

*Paratypes*. CHINA. **Yunnan**: Xishuangbanna, Cheli liusha he, along riverside wet areas in shady forest, 600–800 m, 30 Apr. 1957, *Sino-Soviet Union expedition 9834* (KUN); Xishuangbanna, Mengla, Mengyang, in valley under dense forest in wet areas, 1200 m, 5 Apr. 1957, *Sino-*

*Soviet Union expedition 5869* (KUN-3 sheets); Mengla, Mengxin he, in valley, alt. 570 m, 19 Mar. 1977, *Xhangjianhou 13666* (KUN). CULTIVATED. Glasgow Botanic Garden National Begonia Collection, 18 Jan. 2000, *L. L. Forrest 99* (E).

#### KEY TO THE SUBSPECIES OF *BEGONIA SILLETENSIS*

- 1a. Leaves 10–17 × 10–15 cm; fruit lacking ridges  
 ..... subsp. *silletensis*  
 1b. Leaves 14–27 × 20–27 cm; fruit unequally  
 ridged ..... subsp. *mengyangensis*

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